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Iowa State University Center for Industrial Research and Service

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CENTER FOR INDUSTRIAL RESEARCH AND SERVICE
Partnering with the Iowa Manufacturing Extension Partnership

IOWA STATE UNIVERSITY
University Extension

IOWA STATE UNIVERSITY
College of Engineering

CIRAS NEWS

INSIDE

IBC action plan to boost growth in manufacturing sector

By Alexa Heffernan, Executive Director, IBC

A framework for action

On December 4, 2001, the Iowa Business Council (IBC) convened and facilitated an economic summit to create an action plan that would help revitalize the Iowa economy. The plan, articulated in a document titled, "A Framework for Action," stemmed from "A Case For Change" presented to Iowa's stakeholders earlier in the year. IBC is a private non-profit organization comprising CEOs of 20 of the largest employers in the state and the presidents of the three Regent universities. Its mission is to serve as a catalyst to improve the economic vitality of the state.

The report noted that IBC members were concerned about the sobering demographics that showed Iowa was not only not growing, but it was aging, had a low birthrate, and in-migration barely exceeded out-migration. Members were concerned about the prospect of finding skilled replacement workers as well as new workers who could contribute to the growth of Iowa companies. However, as pointed out in the report, the perceived worker shortage was not the real problem; it was merely a symptom of a bigger problem—the shift in the economic base away from agriculture as well as the state's heavy reliance on government transfer payments.

It was recommended that Iowa needed to look at its economic strengths and focus on resources that could create wealth for its citizens, retain its college graduates by providing job opportunities in high-paying industries, and attract others to relocate to Iowa. The report referred to a 1999 IBC document citing three possible cluster areas of competitive strength: life sciences, advanced manufacturing, and information solutions.

Clusters, according to the council, develop where a critical mass of companies, suppliers, service providers, and supporting institutions such as research institutions, trade associations, and technical or vocational schools are concentrated geographically. Promoting and capitalizing on the value provided by these clusters, according to the IBC, would spawn regional innovation and increase productivity in product development, processing, and commercializing, as well as make it easier for new businesses to access resources and information.

"In the area of advanced manufacturing, of particular concern to CIRAS clients, the initiative is a continuation of the currently existing Advanced Manufacturing Research & Collaboration Cluster (AMRCC)."

Approximately 50 top-level leaders from large and small businesses, entrepreneurs, trade associations, higher education representatives, and economic developers from large and small cities and towns throughout Iowa participated in the December summit, whose primary purpose was to move from ideas to action. By the summit's conclusion, four initiatives were selected and the following action-oriented "hot" teams were formed: capital formation, business development processes, life sciences/protein purification, and advanced manufacturing.

These teams would define action steps, metrics, strategic commitments, and necessary resources needed for implementation.

amrcc

Advanced manufacturing initiatives

In the area of advanced manufacturing, of particular concern to CIRAS clients, the initiative is a continuation of the currently

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CIRAS Mission Statement

The mission of CIRAS is to enhance the performance of Iowa industry and associated entities through education and technology-based services.

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Manufacturing company raises the bar in adopting quality management practices

By Merle Pochop, CIRAS

Mark Gordon, ISO 9000 management representative for Omaha Standard, sits in front of a chart that tracks improvement in the corrective action cycle.

As industry and technology innovations continue to impact business practices nationwide, a Midwest company is setting a trend in the unique way it responds to customer request for value.

In 1926, Standard Manufacturing Company of Council Bluffs became Omaha Standard Inc. Previously, as Standard Manufacturing, the company built wooden wagon boxes and shoveling boards. The reputation for quality products established then still stands today, as Omaha Standard has become a nationwide supplier of truck and special bodies for commercial use. The company's continued success is in large part due to the efforts of dedicated employees at all levels in the company, including co-presidents Tom and Jim Moser.

Omaha Standard had looked at the ISO 9000 quality management system as early as 1997 and received briefings from CIRAS staff Verl Anders on ways to apply this technology but was not convinced at the time that benefits derived from changing its operating methods would be proportional to the investment required. In 2000, Omaha Standard reconsidered adopting ISO 9000 partly because of requests from a number of sales areas. It began to see ISO 9000 as a set of evolving standards geared to improving a company's competitive position with growing acceptance and use in U. S. industries. Today, Omaha Standard is a fitting example in how to adopt ISO standards to improve customer requested product configuration and performance.

"Project management effectiveness is now growing in its ability to respond to corrective action requests. We are beginning to chart response time as a measure of improvement." — Mark Gordon

The shift to ISO began when Omaha Standard contacted CIRAS ISO Specialist Merle Pochop, who briefed the company on its benefits. The CIRAS ISO 9000 team, consisting of Don Brown, Verl Anders, Reg Clause, and Merle Pochop, then conducted a gap audit to determine how existing practices could be adapted to an ISO quality management system.

The audit revealed that the Omaha Standard staff is committed to good work and to manufacturing quality products at all levels, but drawbacks existed. Not all levels could provide complete and accurate documentation as well as instructions in a controlled manner. This prevented identification and elimination of problems, which led to two common ills—higher costs and schedule unreliability. In fact, almost all problems dealing with fit, finish, and dimensional integrity of products could be traced to a lack of documentation. The final product was fine, but the extra time and steps it took to create a quality product resulted in extra costs that directly affected profitability.

Based on this preliminary evaluation, CIRAS provided individual training and educational seminars to Omaha Standard employees at all levels using resources provided by Iowa Western Community College and the Iowa Manufacturing Extension Partnership (IMEP). The sessions covered a fundamental knowledge of the ISO 9000 standard, documentation, staff responsibilities, the external auditor/registrar selection process, and ways to conduct self-evaluation audits to demonstrate maintenance of the ISO 9000 system.

During this time, top management reviewed the company's quality policy and revised it to state: "Whatever It Takes: 'We will do whatever it takes to consistently provide our customers with outstanding quality in our products, service, and delivery.' "

Finally, CIRAS staff conducted a pre-certification audit to evaluate company preparedness for an external auditor/registrar certification of the company as ISO 9000 approved. For members of the CIRAS staff who had not been in the Omaha Standard facilities since the first audit, the change in company set-up and organization was dramatic. At every station, records followed orders. Employees signed work orders to take responsibility for work they had done, workstations were re-arranged, and excess inventory removed. Employees were made thoroughly aware of the company's quality policy and understood their responsibilities.

Not everything is yet in order. ISO Management Representative Mark Gordon is still dealing with piles of

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Fall 2002 offers up a broad spectrum of EDE courses

By Rebecca Sidler Kellogg, Engineering Distance Education

Several engineering departments at Iowa State University are working with Engineering Distance Education in offering a wide selection of courses to off-campus learners for Fall 2002.

Dr. Vinay Dayal, from the aerospace engineering and engineering mechanics department, will teach "Finite Element Fundamentals with Applications." Designed for practicing engineers who want to know more about the appropriate use of finite element analysis and how to evaluate the results, this course will help engineers gain an understanding of the practical advantages and limitations of FE analysis and provide a foundation on which they can correctly build practical knowledge of this powerful analytical method. Topics include fundamentals of FE; 2-D and 3-D elements and applications; boundary conditions; structural, steady, and transient heat flow; modal and vibration analysis; sub-structuring techniques; and special topics selected by industry participants.

Dr. Doug Gemmill, from the industrial and manufacturing systems engineering department, will teach a 3-credit graduate course, "Systems Engineering and Analysis." This course introduces an organized multidisciplinary approach to designing and developing systems. Topics include life-cycle costing, scheduling, risk management, functional analysis, conceptual and detail design, test and evaluation, requirements analysis, and systems engineering planning and organization. Dr. Patrick Patterson, IMSE, is offering a new course, "Design and Evaluation of the Human-Computer Interface." Students will investigate human-computer system characteristics and explore the evaluation of information presentation characteristics of various interfaces. Topics include human characteristics; user interfaces; principles and methods of use-centered design; and the human factors design of Web sites, computer games, information presentation systems, desktop virtual reality, and immersive virtual reality. Dr. Siggi Olafsson, IMSE, will offer "Knowledge Discovery and Data Mining." Students in this course will learn how data mining can be used together with data warehousing and other knowledge discovery technologies to create a competitive advantage.

Dr. Fouad Fanous, from the civil engineering department, is planning to offer a graduate course on structural analysis. "Structural Analysis II" will provide instruction in matrix methods. The course will include an introduction followed by modules in subject areas such as displacement calculations by the unit load method, fundamentals of the flexibility method, the stiffness method, the direct stiffness method, and additional stiffness topics.

Dr. Joseph Gray from the Center for Nondestructive Evaluation at ISU will offer Fundamentals of Nondestructive Evaluation, a graduate course that covers the basic physics of ultrasonic, radiographic, and electromagnetic NDE measurements. The content will also focus on the principles and uses of other quantitative techniques in nondestructive evaluation, signal processing, and evaluation methods.

The faculty from the mechanical engineering department has scheduled three courses for off-campus learners in the fall. Dr. Jess Comer will teach a course in fatigue analysis, formally called "Advanced Machine Design." Dr. Don Flugrad will teach "Advanced Dynamics of Machinery," which covers dynamic forces in machine members, dynamic response of cam-follower systems, rotating and reciprocating machine unbalance, transmitted forces, and machinery isolation. Students will explore computer simulation of dynamic response. And Dr. Michael Olson will offer "Advanced Fluid Flow," a detailed analysis of incompressible/compressible, viscous/inviscid, laminar/turbulent, and developing fluid flows on a particle/point control volume basis.

Again this fall, two courses that are part of the Information Assurance Graduate Certificate will be offered. Dr. Doug Jacobson will teach "Advanced Computer Networking," where students will make a detailed examination of networking standards, protocols, and their implementation. Dr. James Davis will offer "Information System Security." The content will cover computer and network security: basic cryptography, security policies, multilevel security models, attack and protection mechanisms, and legal and ethical issues. Both Jacobson and Davis are faculty from ISU's electrical and computer engineering department.

The certificate program is the only one of its kind available from an institution of higher education to off-campus learners. Participants in the program will earn a graduate certificate from the graduate college at ISU. Coursework for the program can be completed in as little as two semesters, and the credits can be applied towards a master's degree.

In addition to these courses, there are many other credit development courses available. They include

- Modern Control Systems I
- Systems Engineering and Analysis
- Analog VLSI Circuit Design
- Real-Time Systems
- Introduction to Electromagnetic Fields
- Advanced Electromagnetic Field Theory I
- Steady State Analysis
- Power Electronic Systems
- Semiconductor Materials and Devices
- Probabilistic Methods for Electrical Engineers
- Microwave Engineering
- Digital Signal Processing

For additional information about all our courses, delivery methods, costs, registration, and the engineering distance education program at Iowa State University, visit the EDE Web site at www.ede.iastate.edu or call (800) 854-1675.

Selling commercial products to the federal government is as easy as GSA

By Bruce Coney, IPOC

The General Services Agency (GSA) is a federal agency where many potential contractors get their first exposure to government contracting. GSA buys commonly used commercial items from pencils and pens to cars and trucks for use by all federal agencies. GSA also deals with construction and leasing of facilities including all items in that facility from desks and chairs to coffee pots and computers. In short, if a typical government office or industrial setting requires a set of services or products, GSA has the capacity to provide it.

Another service that GSA also provides to federal agencies is bulk purchase and storage of common-use items for distribution to federal agency customers. GSA will act as a vendor in some cases for specific items obtained through the businesses.

How do I get my GSA number for a no-bid contract?

There are established regional GSA offices around the country that provide specific products such as furniture, automotive products, hardware, and appliances, as well as management services. These business opportunities are accessed through the multiple award schedule (MAS) process.

The MAS is a pre-negotiated set of prices, terms, and conditions between a business and the government for specific products (such as hardware and appliances) that are managed through the regional office in Kansas City, Missouri.

The offeror or business will approach the appropriate GSA regional office to obtain necessary documents to submit an offer. The government will accept the offer after some negotiation and issue a GSA schedule contract to the business along with a unique contract number that enables the business to market its product or service to federal agencies. If a particular federal office is interested in purchasing an item from the offeror, it may do so without going through the bidding process as long as it uses the pricing, terms, and conditions set forth in the GSA schedule and subsequently places the purchase order referencing the GSA number.

Marketing

Many contractors who have developed and marketed a product can find potential opportunities with the federal government through GSA MAS procedures. It is very important that businesses interested in this opportunity be aware that this method is only successful for those firms who actively market their service to the federal government.

The operative word in MAS is "multiple," implying that there are scores of other businesses that are eligible to offer

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Second Annual Mini-Expo and Breakfast
Come speak with purchasing agents from large businesses, the state government, and federal agencies, who will come prepared to make bidding opportunities available. There were 150 participants last year, and attendance is expected to be even greater this year. *Date: July 11, 2002; Place: Top of the Tower at Holiday Inn, Downtown Des Moines, 1050 6th Avenue; Time: Breakfast 7:30, Mini-Expo 8:30 and 12:00.* If you are a purchasing agent for your company and need suppliers, we would be happy to reserve a table for you to present. Cost: $25.00 (includes breakfast).

Small Business Workshop
This daylong workshop, sponsored by the Small Business Development Center (SBDC) and IPOC/CIRAS and in cooperation with the U.S. Small Business Administration (SBA), will focus on giving small business owners and potential entrepreneurs the tools for success. *Date: June 20, 2002; Place: Creston SBDC; Time: 9:00.*

Ins and Outs of Federal Government Contracting—Workshops
Find out what the government requires in the way of quality, quality inspection, and packaging, and learn about electronic bidding opportunities and electronic commerce. *The first workshop is on July 10, 2002, at the Des Moines Botanical Center. Cost: $40.00—all day session (includes lunch) or $25.00—half day. Future dates and locations for 2002: July 17—Davenport; July 24—Ottumwa; August—Okoboji.*

Breakfast, Business & More
The Breakfast, Business & More events provide an excellent opportunity for entrepreneurs to meet other business owners, corporate buyers, and new clients. It opens up avenues to meet federal and state area representatives and visit with local business service programs that can assist in business growth. *The breakfasts begin at 7:30 a.m. and will be held at the Des Moines Downtown Holiday Inn on the following days:*

July 11, 2002	2nd Annual Mini Expo
September 12, 2002	Hiring Practices
November 7, 2002	E-commerce for Small Business

The facilitator for these events is Ted Williams, CEO of the Williams Group, Inc., Des Moines, Iowa. Breakfast, Business & More is sponsored by Channell Construction Iowa and Nebraska, Principal Financial Group, and the Minority and Women Business Conference and Expo. It is in cooperation with IPOC/CIRAS, Drake Small Business Development Center, and Small Business Administration.

For information on the workshops or to make reservations for all the above events, contact Kathy Bryan at (800) 458-4465, kbryan@ciras.iastate.edu.

Iowa Industries of the Future symposium to focus on bioeconomy

By Jill Euken, ISU Extension

"Transforming agriculture for the bioeconomy" is the theme of the Iowa Industries of the Future (IIOF) 2002 IIOF Symposium, to be held on September 4, 2002, in the Scheman Building at the Iowa State Center in Ames. The symposium is the culmination of 2002 IIOF activities and is designed for agricultural industry leaders, scientists, agricultural producers, public and commodity agencies, and other organizations and interest groups.

What is the IIOF/Agriculture Initiative?

IIOF is the brainchild of the U.S. Department of Energy and is facilitated in Iowa by CIRAS and ISU Extension. In late winter and spring of 2002, several meetings were held to spur innovative thinking and vigorous debate necessary to develop an inspiring, broad-scale vision for Iowa's bioeconomy. Participants in these sessions included agricultural producers, processors, and plant scientists, as well as rural economic developers, environmental advocates, and manufacturers of bio-based products.

What is a bioeconomy?

In a bioeconomy, raw materials for the basic building blocks of industry and energy are derived from plant/crop-based renewable sources.

The IIOF project stems from these three environmental realities:

- Fossil fuel, which powered phenomenal growth in the 20th century, today remains the predominant feedstock for many consumer products, transportation fuels, heat, electricity, and chemicals.
- Virtually all products that are currently manufactured from fossil fuels can be made from biorenewables. Finite reserves of petroleum and natural gas will inevitably constrain growth, and the U.S. must augment fossil fuels with new chemical feedstock and energy sources in order to sustain economic vitality and quality of life.
- National security concerns have intensified the need to decrease our dependence on foreign oil. Expanding the research and development of biorenewable sources for products, industrial feedstock, and energy will create viable alternatives to foreign oil imports.

Traditionally, the power, fuel, and chemical industries have been relatively distinct from each other. In contrast, the bio-based products and bio-energy industry is likely to be more tightly integrated, with production facilities that exploit the economies of producing multiple products from multiple feedstocks.

Developing such an integrated industry will be profoundly challenging—analogous to a "moon-shot," which will require bold visionary effort, simultaneous advances on multiple fronts in science and technology, massive investments in infrastructure and market development, and a foundation of supportive policies and education.

For more information, log on to www.ciras.iastate.edu/iof and click on Agriculture or contact Jill Euken at (712) 769-2650 or jeuken@iastate.edu.

The symposium will

- provide opportunities for participants to learn about the bio-refineries of the future
- unveil the Iowa Vision and Roadmap for the bio-based products industry
- help scientists, producers, processors, and end-users form new partnerships for bio-based research, development, and processing
- create a venue for development of bio-industry action teams in the areas of policy, capital, and market development

The IIOF Steering Committee invites all interested persons to Ames for the symposium to learn more about the bioeconomy and how Iowa can capitalize on what it has to offer.

Selling commercial products

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their products or services on the MAS. Although each firm receives its own unique GSA number, it is the firm's responsibility to identify the superiority of its product from that of a competitor offering a similar item. It is this process that determines the success of a business in this form of federal contracting.

IPOC assistance

IPOC will be glad to help you understand potential opportunities for your business using GSA MAS and assist you with submitting your offer, negotiating your terms and conditions, and marketing your schedule contract to appropriate federal customers.

If you would like to learn more about federal contracting in general and about GSA MAS specifically, contact Bruce Coney, IPOC program manager at (515) 294-4461, bconey@ciras.iastate.edu; or Kathy Bryan at (800) 458-4465, kbryan@ciras.iastate.edu.

Iowa companies get international exposure through IDED

By Lisa Mason, IDED

The international office within the Iowa Department of Economic Development (IDED) performs many functions, all of which are designed to strengthen Iowa's presence in the international marketplace. The IDED staff in Des Moines and its foreign offices in Frankfurt, Germany, and Tokyo, Japan, along with contractual representatives in Asia and Latin America, all work together to promote Iowa and assist Iowa companies in export development and growth.

Several events are organized throughout the year for Iowa companies through the international office. They include catalog shows, trade shows, trade missions, educational events, and foreign delegation visits. Trained staff in Des Moines and in the foreign offices provide individual consultation to Iowans interested in international trade.

Here's what some Iowa companies have to say about the assistance they have received through IDED's international office.

"As a small manufacturing company, the Export Trade Assistance Program and outreach and exposure we receive through the international office lets potential customers, agents, representatives, and distributors know who we are and what we manufacture." — **Rocklin International Corporation**

"Five years ago, we entered the international market with limited funding and no international experience. Because of the assistance we received through the IDED, we are now exporting our Iowa-manufactured products to 32 countries." — **Cycle Country Accessories**

"The knowledge and insight gained as a result of the international office's assistance has helped my company understand the differences, needs, and uniqueness of foreign markets. It is crucial for small businesses like Universal Industries to establish a presence in foreign markets if we want to compete in an ever-increasing global marketplace." — **Universal Industries**

For more information on IDED's international office assistance programs, or if you would like to be added to the mailing list, please contact (515) 242-4743, visit the Web site at www.iowaexports.com, or email international@ided.state.ia.us.

Do business with your neighbors at manufacturing expo

By Lisa K. Smith, Vice President, Cedar Valley Manufacturers Association

The 2002 Northeast Iowa Manufacturing Exposition will be held on Tuesday, October 8, 2002, from 10 a.m. to 6 p.m. at the Five Sullivan Brothers Convention Center in Waterloo, Iowa. Join John Deere, GMT Corporation., Omega Cabinets, Iowa Laser, Wayne Engineering, and other established companies in learning more about potential sales contacts and career opportunities as well as new technology and management tools in manufacturing.

Don't be afraid to show Iowa and America that you are open for business and help this event continue to grow into one of Iowa's most prominent manufacturing trade shows. Last year there were over 70 exhibitors, and the list is sure to grow this year!

The manufacturing expo has over the years become one of the largest manufacturing trade shows in the area. In 2001, attendance more than doubled with over 600 people in attendance participating in events such as mini-seminars that covered issues in improved technologies, process management, lean manufacturing, and rapid prototyping.

The Cedar Valley Manufacturers Association (CVMA) continues to develop this annual event with the support and participation of several manufacturing organizations and educational institutions. They include

- ISU's Center for Industrial Research and Service (CIRAS)
- Hawkeye Community College
- Society of Manufacturing Engineers (SME)
- Educational Society for Resource Management (APICS)
- Area VII Quality Managers Network
- Exploring Manufacturing Careers Consortium (EMC^2), which is becoming a nationally renowned school-to-career program
- Iowa Manufacturing Extension Partnership (IMEP)

The purpose of this event is to share with other manufacturers and purchasing agents the products and/or services your company offers. So, if you are a manufacturer with a product to sell or a purchasing agent seeking opportunities to expand your options of suppliers/vendors, then this event is for you!

For exhibitor or ticket information contact the CVMA/CIRAS office at (319) 266-3390. Discounts are available for early registration. Cost to exhibit is $150 with a $50 discount if registration is received by July 15, 2002. Admission is free with a ticket.

Case study: What is the value of my inventory?

Field Agent Name: Steve Vanderlinden, CIRAS
Project Name: Inventory Valuation

Company Profile:
Reeves Spinning Wheels, a division of Stuhr Enterprises in Wilton, Iowa, was a small private firm that produced and sold spinning wheels.

Situation:
The company needed a program that would keep track of the inventory value of raw materials, work-in-process, and finished goods. The owner was looking for an inventory system that would compile cost and maintain inventory quantities.

Solution:
An inventory program was developed in Microsoft Excel for the company's three major types of inventories: raw materials, work-in-process, and finished goods. It was determined that this application would only collect labor and material costs, and direct overhead costs would be applied using a different method.

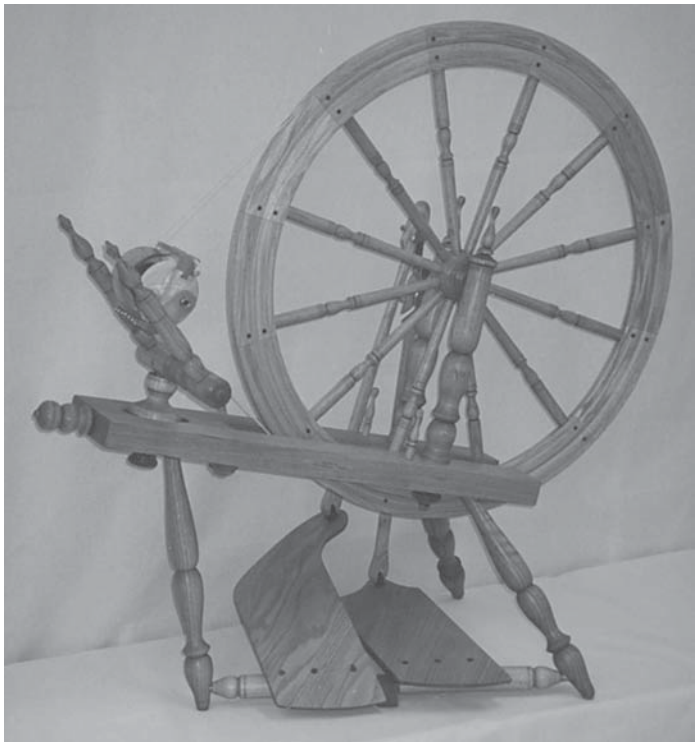
A standard spreadsheet was developed and used for each of the three different inventories. The sheets were designed so that labor and material costs could be accumulated from the previous sheets into the finished goods sheet to arrive at a total cost for a spinning wheel.

The cost of work-in-process inventory was separated into three sheets—blanks, parts, and sub-assemblies. The program also tracked quantities of inventories at each level.

The program was tailored to the owner's needs to help keep track of labor and material costs without duplication. It kept an accurate record of costs at several different stages and consolidated the values into the final, finished goods sheet.

Results:
The inventory system helped the business maintain inventory quantities and values with a few entries each day. The system used cycle counting instead of an annual physical count to maintain accuracy.

Testimonial:
"This is the greatest system I've ever seen. It works so well and is so easy to use." — **Rick Reeves.**



An inventory program kept track of production costs of each part of the spinning wheel.

CIRAS business management team can help businesses bring decision making into focus

Do you want to know what your product is really costing you? Or how healthy your business is compared to other businesses? Are you looking to upgrade your manufacturing software? Or are you considering purchasing a new product or business?

The CIRAS business management team can provide assistance with business decisions that impact productivity and growth including

- Financial operations analysis
- Activity-based costing
- Feasibility studies for product or business
- Manufacturing software selection
- Business marketing for manufacturers

For more information, contact CIRAS Financial Specialist Steve Vanderlinden at (563) 336-3318 or (800) 462-3255, svan@ciras.iastate.edu, or call the CIRAS central office in Ames at (515) 294-3420.

Recycle program offers technical assistance and education

By Michaela Rich, RRTTC

The Recycling and Reuse Technology Transfer Center (RRTTC) is an interdisciplinary research, education, and outreach center serving Regent university researchers and students, Iowa citizens, business, and industry.

The RRTTC's goals include the development of economical approaches to solving intractable solid waste problems and providing research and technical assistance on public health concerns as they relate to solid waste concerns. As a Regent-funded center, the RRTTC is also concerned with the development of student and faculty expertise in the areas of eco-industrial sustainability and byproduct re-utilization. RRTTC accomplishes this through a competitive grants program, funding projects that focus on the above problems, including projects that emphasize sustainable byproduct re-utilization and industrial ecology.

Funding is awarded to established researchers in a wide variety of academic fields to conduct basic and applied research that addresses a particular question or issue concerning Iowa business and industry. These projects must also serve to educate students in recycling, reuse, and resource minimization. Projects receive one- to two-year RRTTC grants and are selected on a competitive basis following external peer review. Over 30 research projects have been supported to date, and results are made available through publications, seminars, presentations, and news releases.

The RRTTC assists Iowa manufacturers in the research and development of products containing recycled content materials through the Materials Testing Service (MTS), a program developed in cooperation with Recycle Iowa and located at the University of Northern Iowa. Through MTS, small- and medium-sized Iowa companies have affordable access to the latest in mechanical, physical, and chemical properties testing for the purpose of byproduct re-utilization. MTS also acts as a consulting agency, tailoring its test services to each client's particular needs and assisting clients in product development whenever possible.

Testing services include chemical, mechanical, and physical property tests for a wide range of metallic, polymer, and cementitious materials. Testing is initially provided to companies through a reduced-cost incentive program, in which qualifying companies pay 1/3 of the testing costs.

Through research and participation in outreach activities designed to educate Iowans on sustainability, solid waste problems, and newly discovered approaches to recycling and reuse, graduate and undergraduate students have opportunities for experiential learning that extends beyond their traditional classroom experience. The RRTTC has provided in-depth research opportunities for over 90 student interns from a wide range of majors. These students work first-hand with community and industry representatives on solving relevant problems and addressing current issues.

The RRTTC maintains ongoing relationships with several state agencies and organizations and provides education and technical assistance regarding solid waste issues to Iowa companies and communities through brief consultations, student projects, and in-depth research projects.

For more information about the RRTTC and its programs, contact Michaela Rich, RRTTC program manager (319) 273-3689, michaela.rich@uni.edu, or visit the Web site at www.rrttc.uni.edu.

ISU faculty recognized for service to Iowa industry

Dr. J. Adin Mann III was awarded the Lloyd E. Anderson Superior Service to Industry Award during the annual ISU Extension Awards Convocation, held in April. He was presented with the Anderson Award plaque and a monetary award in recognition of his dedication and service to Iowa industry and manufacturing needs.

Dr. Mann, an associate professor in aerospace engineering and engineering mechanics at ISU, has served the Iowa manufacturing community through both CIRAS and the Center for Advanced Technology Development (CATD) for the last three years. During this time, he has used his expertise in acoustics and noise control to help numerous companies improve their products, increase profits, and create more employee-friendly workplaces.

The Lloyd E. Anderson Superior Service to Industry Award is presented in honor of Lloyd E. Anderson, who worked at ISU for over 30 years and is a well-known friend to Iowa industries. Anderson established the structure that has allowed CIRAS to provide its services to industries across the state of Iowa. This award recognizes faculty and staff at ISU who have provided continued assistance to industry with their products and processes.

From left: Fred Sick, President, Iowa Association of County Extension Councils; Adin Mann; and Stanley Johnson, Vice Provost, ISU Extension

Eight new members join CIRAS Advisory Council

Mark Burrell

Burrell is principal of marketing at Progressive Designs, a multi-channel marketing firm in Des Moines that specializes in graphic design, distribution, and product fulfillment activities.

Curt Grimm

Grimm is president of Grimm Brothers in Wapello, makers of thermoformed plastic sheeting for the medical, fitness, recreation, and food and beverage industries, to name a few.

Ryan Gruhn

Ryan is engineering manager at Schafer Systems, Inc., in Adair. Schafer manufactures plastic products, from plastic lottery ticket dispensers to modular floating docks for the marine industry.

Kevin Jensen

Jensen is lead project engineer at Insul-8 in Harlan. Insul-8 designs and manufactures contact conductors for stationary and mobile systems.

Jim Marks

Marks is engineering manager at Wayne Engineering, Cedar Falls, a manufacturer and distributor of refuse collection equipment and in-trailer crane systems.

John Marshall

Marshall is the president of and a partner in Yellow Jacket Manufacturing Inc., a metal fabricator and designer in Griswold with primary business in manufacturing mufflers, exhaust systems, and bent tubular products.

Steve Pierce

Pierce is vice-president of operations and sales at Wiese Corporation in Perry, a manufacturer and distributor of farm tillage tools.

Larry Raymon

Raymon is CEO of DONCO Air Products, located in Albion and specializing in air distribution equipment for the heating, ventilating, and air conditioning industry.

Learning translates into valuable service

By Sunanda Vittal, Engineering Communications and Marketing

From left: Curt McFadden, Jhonson Sahlan, and Steve Frankeberger

Jhonson Sahlan, an ISU industrial engineering senior, has helped design equipment for a start-up company that manufactures chemical instrumentation. Electrical engineering senior Steven Frankeberger is assisting a tool and dye company to upgrade its 30-year-old metal fabrication unit. And mechanical engineering senior Curt McFadden has helped redesign machine components for a coolant system to improve performance and efficiency. All three students graduated from Iowa State this spring.

These are just some ways that ISU students are contributing to CIRAS projects. Closely supervised by experienced CIRAS staff, students offer keen insight into problem-solving situations as well as a fundamental knowledge of the latest techniques and methods in manufacturing. Students, in turn, get a chance to work with cutting-edge technology made available through CIRAS resources and obtain valuable pre-professional experience as they prepare to enter the work force.

"The great thing about working at CIRAS is the opportunity to apply the theory gained while going to school at the same time," said Frankeberger, who is

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IBC action plan

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existing Advanced Manufacturing Research & Collaboration Cluster (AMRCC), which was formed in 1999 by a group of IBC manufacturing members, the University of Iowa, and Iowa State University. The AMRCC focus was to collaborate on research and share new advanced breakthrough technologies, processes, and knowledge with Iowa end-product manufacturers and their suppliers.

AMRCC, currently chaired by Jack Harris of Rockwell Collins, has been expanded to include smaller manufacturers as well as representatives from IMEP and CIRAS. Its goals are summarized below.

1. Broker a broad base of product design and development expertise to first-, second-, and third-tier Iowa manufacturers. AMRCC's first successful project was in the area of rapid prototyping. Two machines were purchased, an SLA (laser sintering) and SLS (stereolithography), which were installed at two AMRCC member companies. With the help of CIRAS, this technology was demonstrated at the two sites. Interested companies could order part builds over the Internet, which could then be shipped out within 48 hours of acceptance. Over 95 individuals from 60 Iowa companies attended the open houses and demonstrations over a one-year period, and there were more than 700 orders from Iowa manufacturers. AMRCC is now determining its next demonstration project based on results of roundtable discussions held around the state.

2. Create extended communities of practice (COP) on selected topics. "Communities of practice are groups of people who share information, insight, experience, and tools about an area of common interest."[1] It is the sharing of tacit knowledge—the kind of knowledge you don't find in books—that can only be shared person-to-person.[2] Currently, many of the AMRCC companies have internal COPs, but creating COPs that are open to all Iowa companies and universities will increase the knowledge base and, thus, productivity of all Iowa companies.

3. Benchmark best practices in fostering idea generation and create a forum to share these practices. Each of the large AMRCC companies is currently working on a formalized process for idea generation—from initial idea formation to the completion of a product that is shipped out. By sharing these processes with each other, best practices can be formulated and shared with others on a user-to-user basis within the Iowa manufacturing community.

4. Establish an advanced manufacturing education, training, and re-training clearinghouse. Currently there is no "one" source of information for Iowa manufacturers that lists all available programs and sources of assistance for training. Community colleges, public and private universities, private sector training firms, and governmental and quasi-governmental agencies all have resources available. AMRCC intends to create a database to pull all these resources together in conjunction with other information that may be of interest and assistance to Iowa manufacturers.

The IBC predicts that the impact of these actions would translate into increased levels of competition for Iowa manufacturers by helping them gain access to the tools, technologies, and knowledge needed to raise their productivity and promote growth for Iowa companies.

[1] Wenger, E. 1998. *Communities of Practice*. Cambridge, U.K.: Cambridge University Press.
[2] McDermott, R. 2000. Knowing in community: 10 critical success factors in building communities of practice. *IHRIM Journal* (March).

For more information on IBC policies, visit the Web site at www.gro-ia.org.

Manufacturing company raises the bar

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paper work as employees identify and detail items on corrective action requests for changes, from dimension changes on prints to tolerance levels for specific operations. But the significant issue is that employees are empowered to request and get these changes!

In situations like this, ISO is much like an iceberg. Ninety percent of its form is hidden from view under water while the appearance of housekeeping, product ID, and readily available work instructions are more visible. But material scrap and schedule completion reliability measures are still far from the intended goals. Changes, however, are being systematically incorporated. These include employing cellular techniques, adopting Kanban, and revising designs with fasteners, replacing welds, and using adhesive joinings to improve appearance and speed response.

All these activities reveal that Omaha Standard is well on its way to enhancing its reputation as a provider of quality truck accessory equipment. The most important benefit, according to Gordon, is growing operator awareness of quality costs. "People are now looking at areas that were never of concern before," said Gordon. "Project management effectiveness is now growing in its ability to respond to corrective action requests. We are beginning to chart response time as a measure of improvement," he added.

For information on ISO management, contact Merle Pochop at (712) 274-0048 or mpochop@ciras.iastate.edu.

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INSIDE

Learning translates into

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skilled in the area of data acquisition and control methodology. McFadden found opportunities to exercise his expertise in reverse engineering techniques, and Sahlan applied advanced computer software programs in process model simulation and factory flow to analyze a company's performance, map work areas, and improve material handling processes.

"I have gained tremendous experiences working with CIRAS," expressed Sahlan, who was recently recognized with a Student Alumni Leadership Council award for creativity and diversity of leadership experience. "Not only did I have an opportunity to work with the cutting-edge technology, but I also found a chance to work with clients in a professional environment," he added. McFadden is confident that his expertise in solid modeling programs and finite element analysis will prove advantageous in his job pursuit after graduation.

The learning curve at CIRAS is intense, as is the valuable technical assistance it translates into for client services.

For more information on how CIRAS students can assist your company with technical problems, contact Jeff Mohr at (515) 294-8534 or jmohr@iastate.edu; or Steven Devlin at (515) 294-5416 or sdevlin@iastate.edu.

CIRAS/ISU Extension staff honored

The Cedar Valley Manufacturers Association recognized Dawn Hines and Mike Willett from the ISU Industry Outreach Center in Cedar Falls with plaques for outstanding contributions at its annual dinner and awards meeting.

The Industry Outreach Center is the host location for CVMA, which has over 100 members located in a five- county area around Cedar Falls.